

Representative Images RB case

Maria Rosana Ponisio, MD

Assistant Professor

Residency Program Director

Division of Nuclear Medicine, Mallinckrodt Institute of Radiology

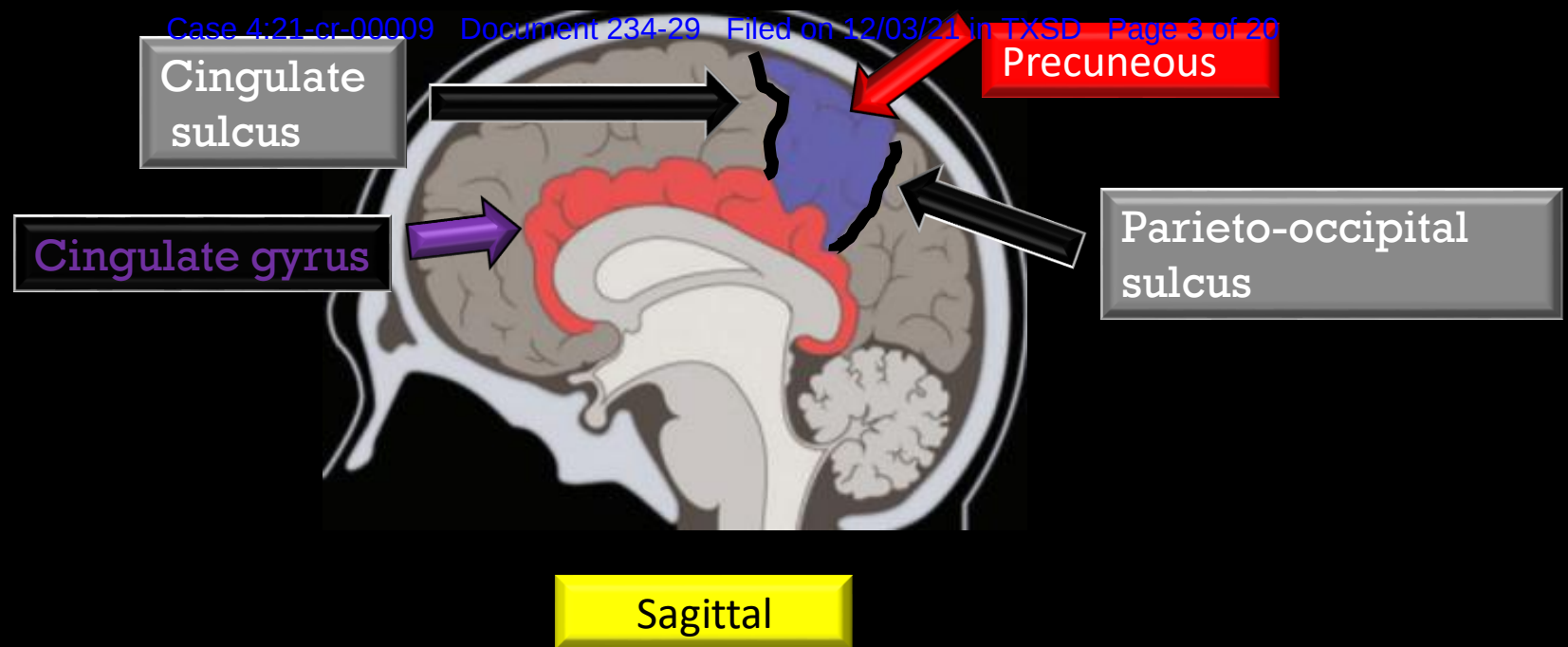
Washington University School of Medicine

US v. Brockman

DX-34

Case No: 4:21-cr-0009

FDG-PET/CT
Scan date: 03/12/2021



- Two key structures to recognize are the **cingulate gyrus** and the overlying **precuneus cortex**, which are best appreciated on **sagittal images** of the medial hemispheres.
- The **cingulate gyrus**, located adjacent to the corpus callosum, is affected early in neurodegenerative disorders.
- The **precuneus** lies cephalad to the posterior cingulate gyrus and is bounded anteriorly by the cingulate marginal sulcus and posteriorly by the parieto-occipital sulcus

Cingulate
sulcus

Cingulate gyrus

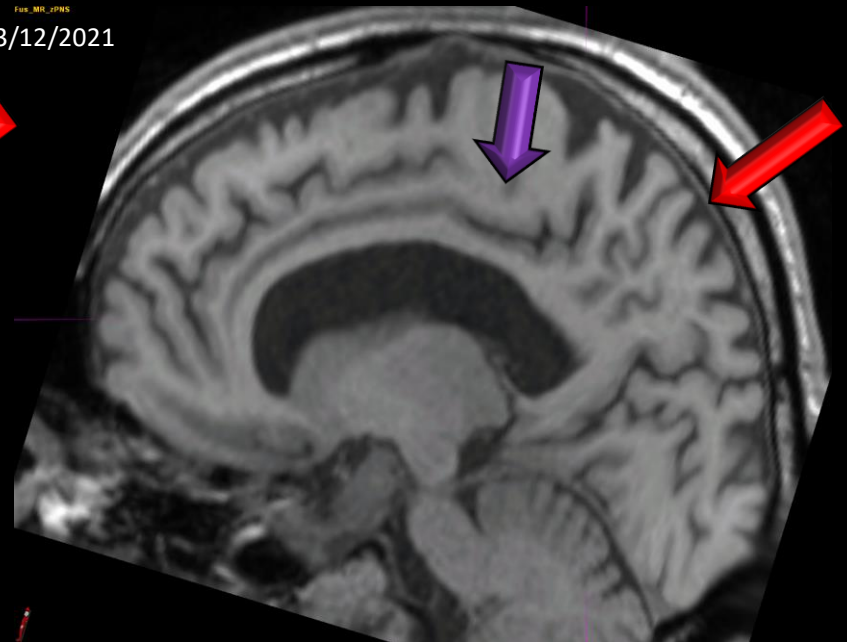
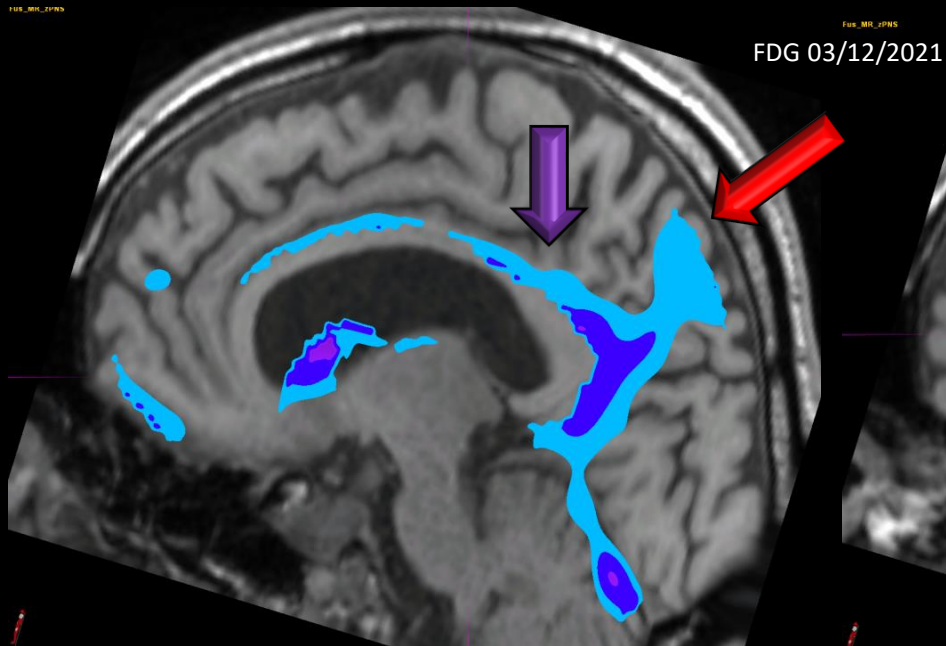
Precuneus

Parieto-occipital
sulcus

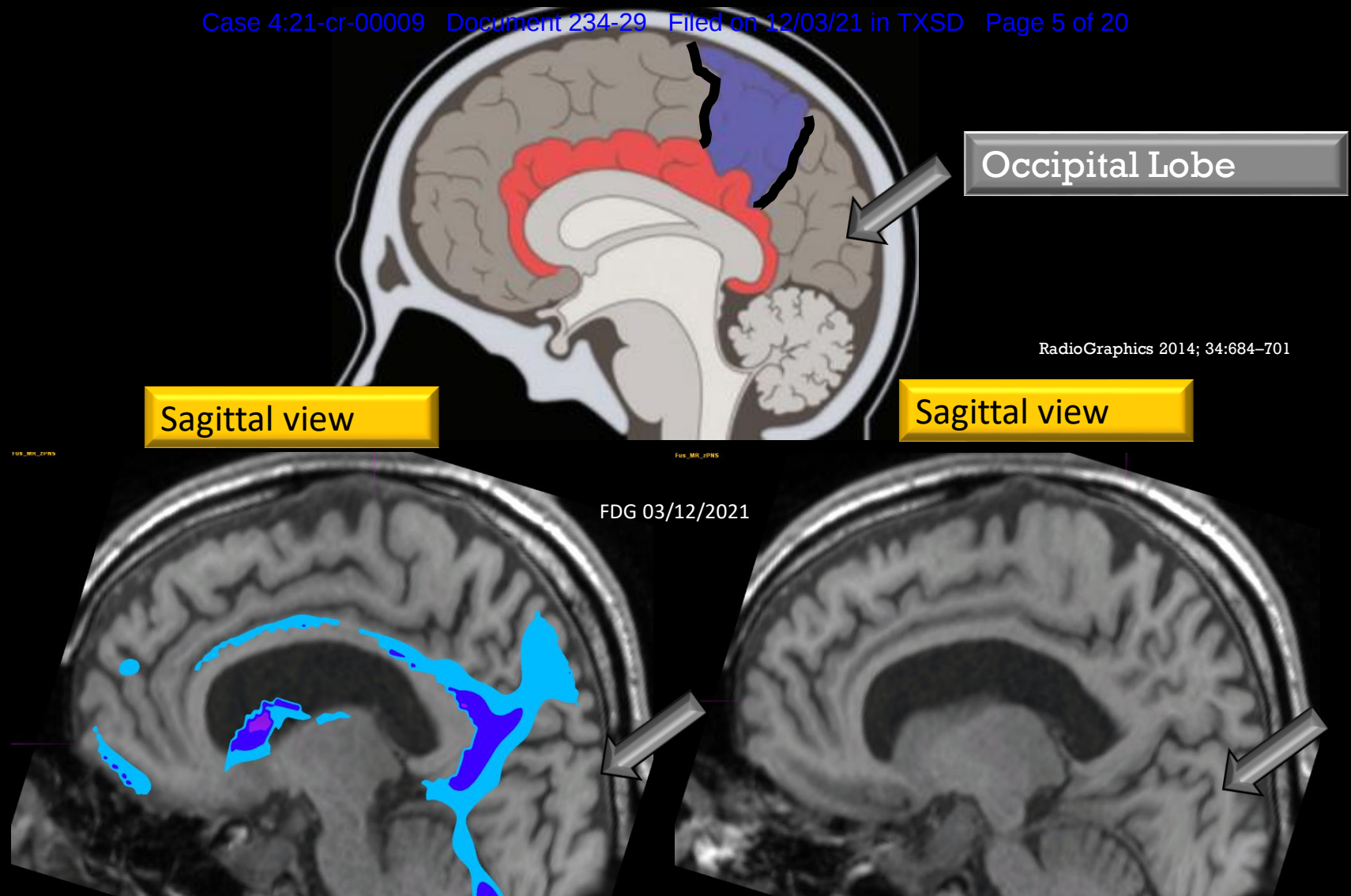
RadioGraphics 2014; 34:684-701

Sagittal view

Sagittal view



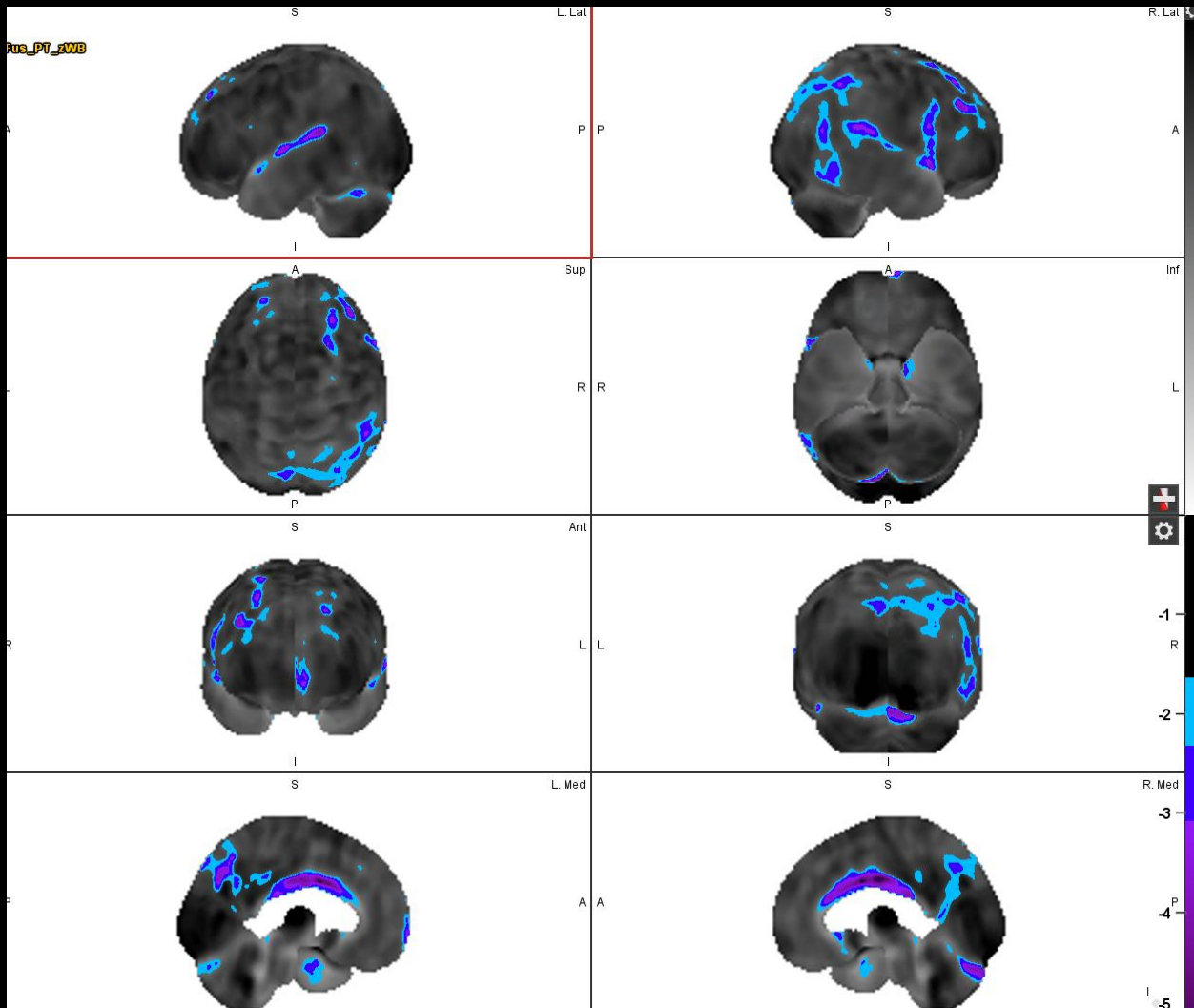
Blue = -2 SDs, purple = -3 SDs



No hypometabolism in the occipital lobes was seen , including the primary visual cortex a finding associated with Dementia with Lewy bodies (DLB).

DLB is also associated with normal FDG uptake in the cingulate gyrus. This patient has decreased activity in the cingulate gyrus and precuneous, most consistent with early AD.

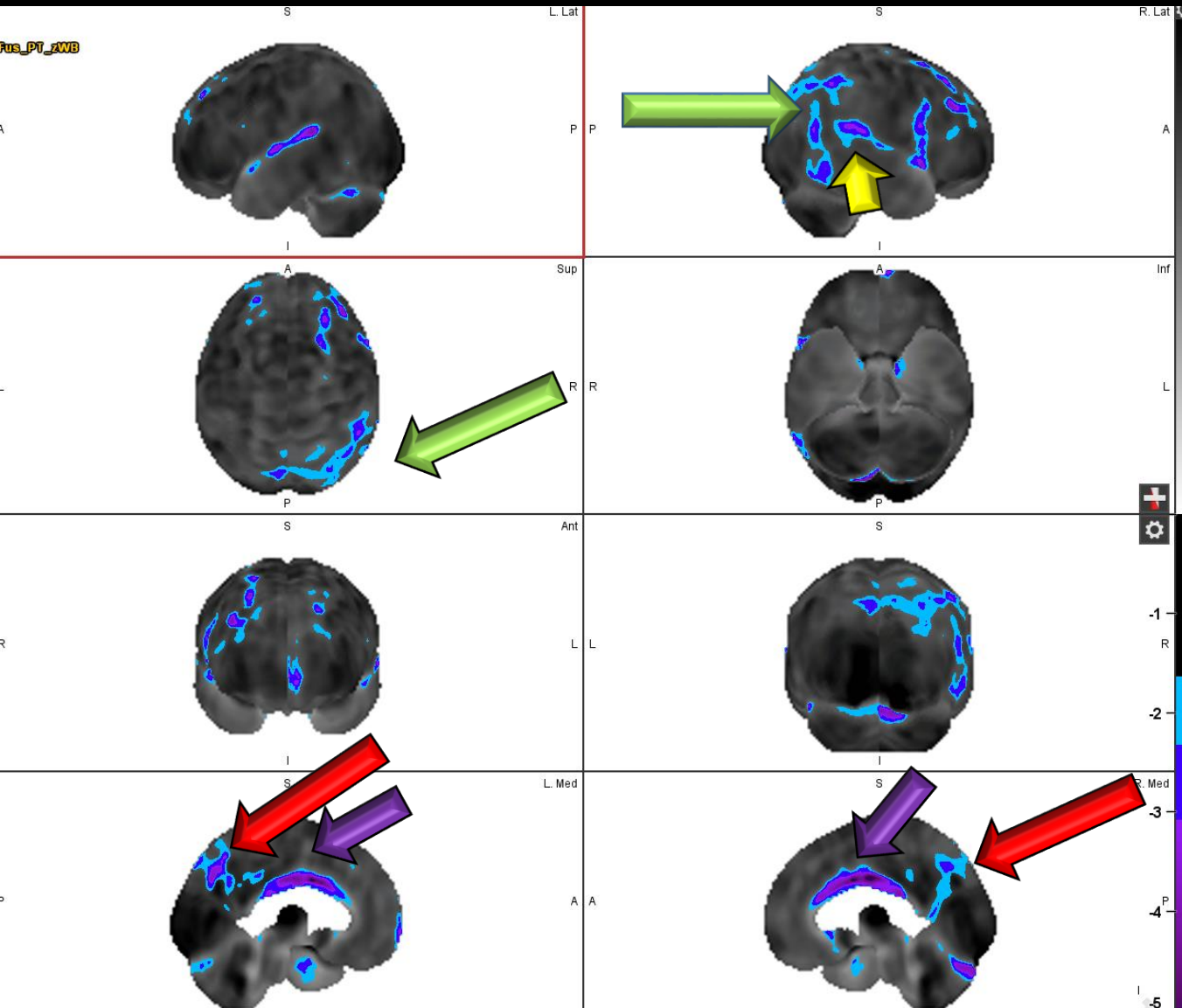
Voxel-based analysis results normalized to whole brain: 3D Stereotactic surface projection (SSP)



Colors scale means
decreased
metabolic activity

Blue = -2 SDs, purple = -3 SDs

Voxel-based analysis results normalized to whole brain: 3D Stereotactic surface projection (SSP)

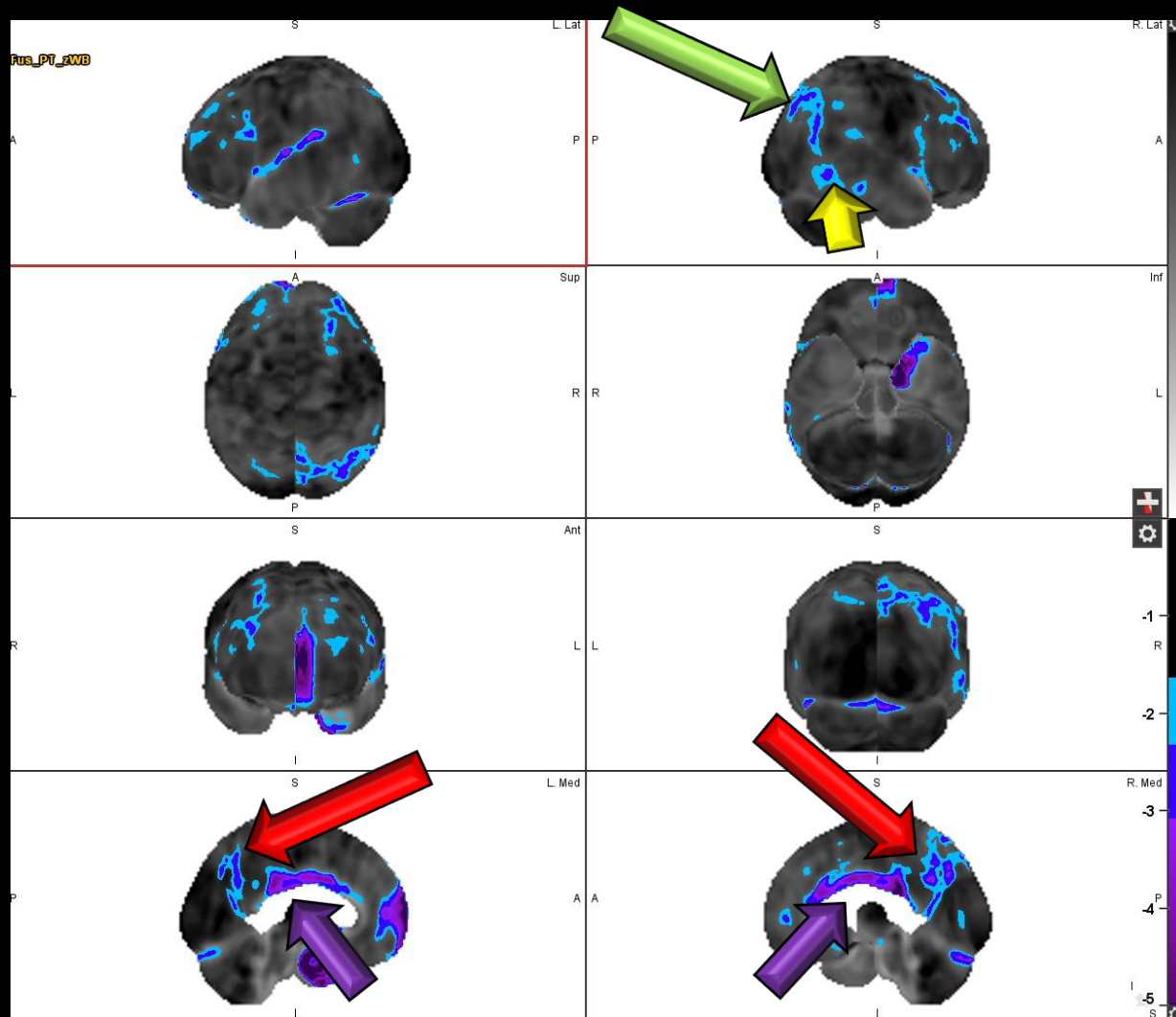


- Precuneous
- Cingulate Gyrus
- Parietal
- Posterior temporal lobe

03/12/2021

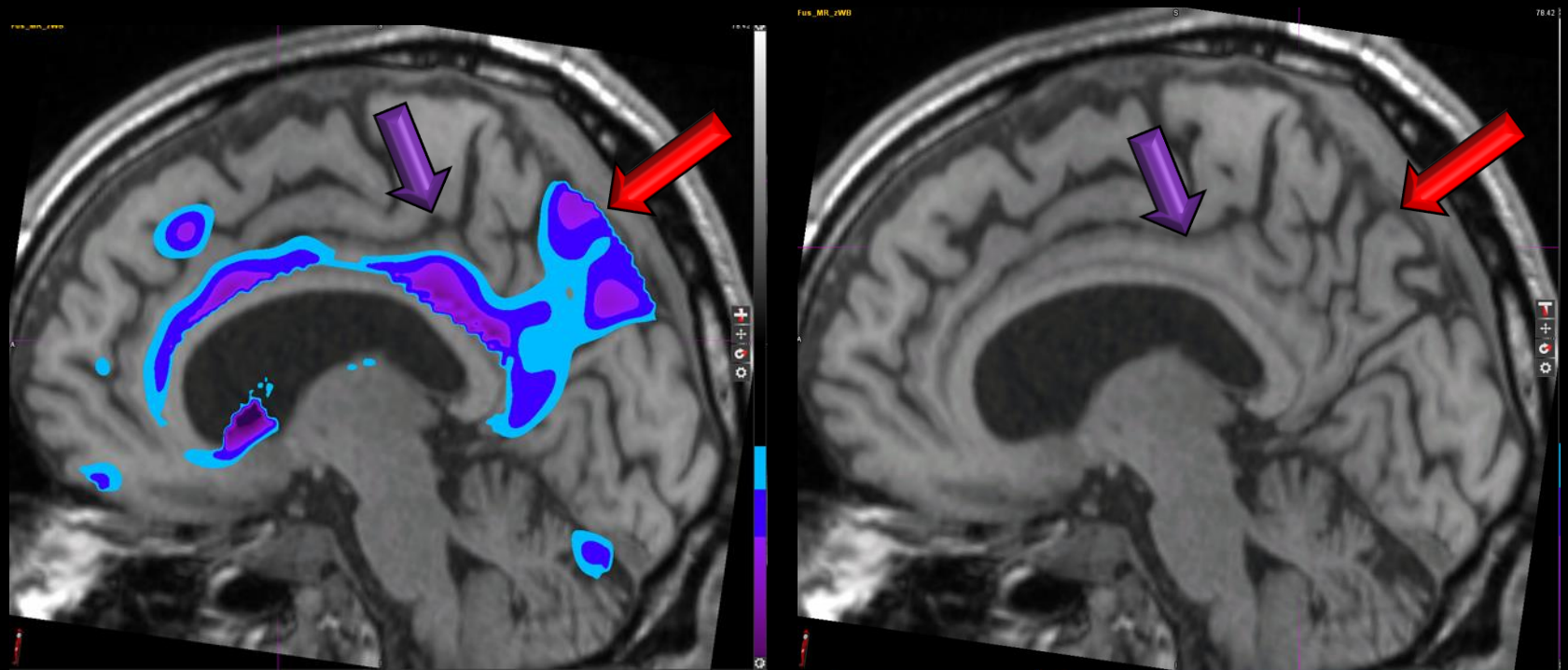
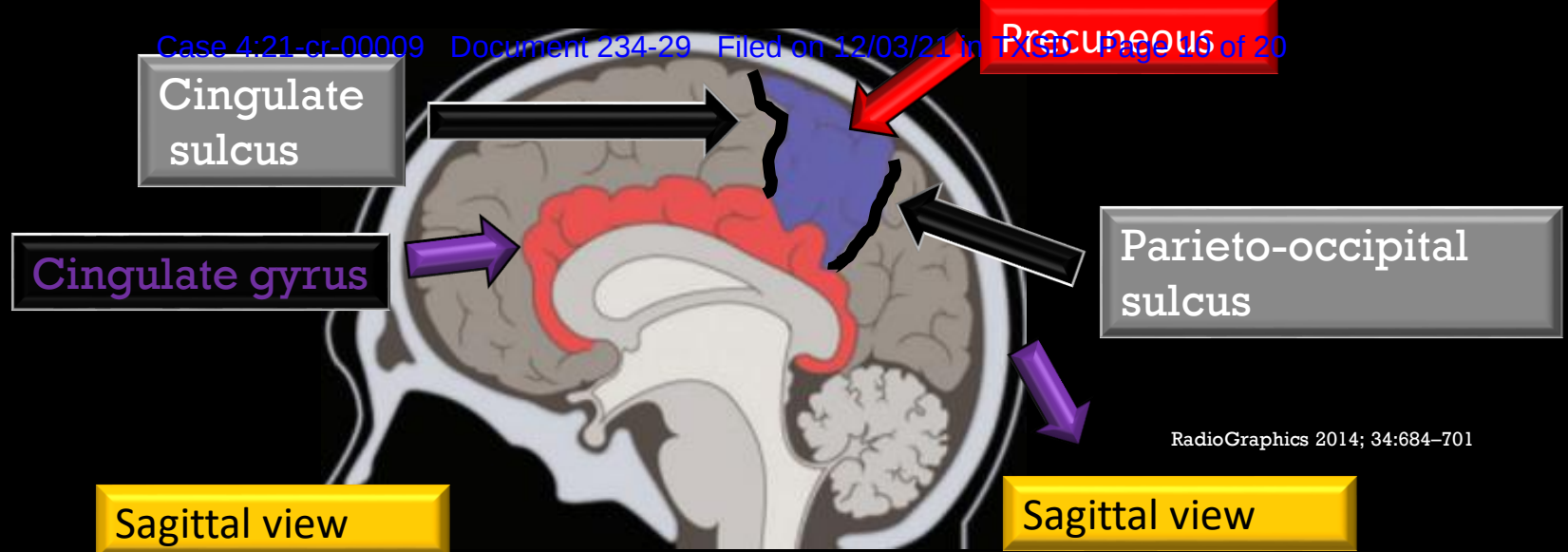
FDG PET/CT
Scan date:8/24/2021

Voxel-based analysis results normalized to whole brain: 3D Stereotactic surface projection (SSP)



- Precuneous
- Cingulate Gyrus
- Parietal
- Posterior temporal

FDG 8/24/2021



Blue = -2 SDs, purple = -3 SDs

FDG 8/24/2021



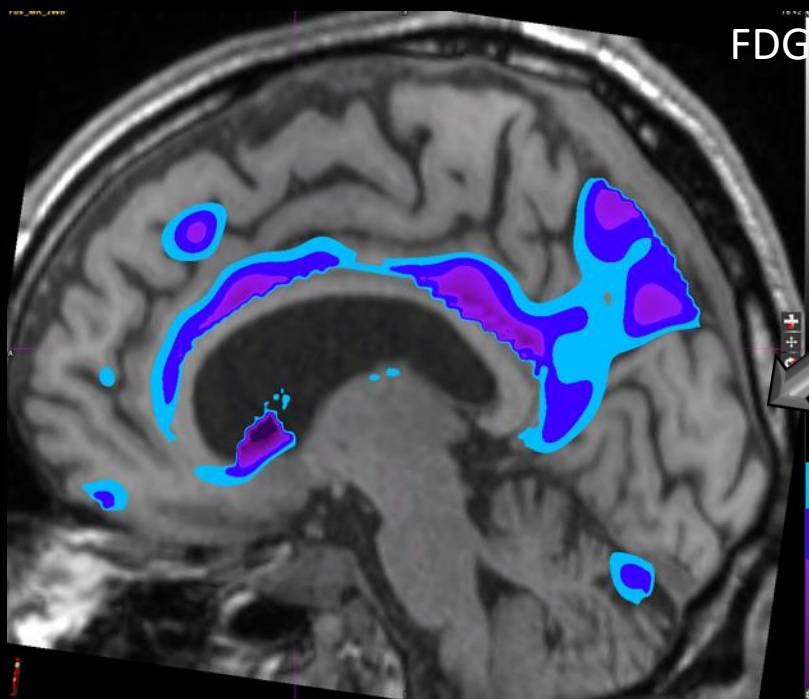
Occipital Lobe

RadioGraphics 2014; 34:684-701

Sagittal view

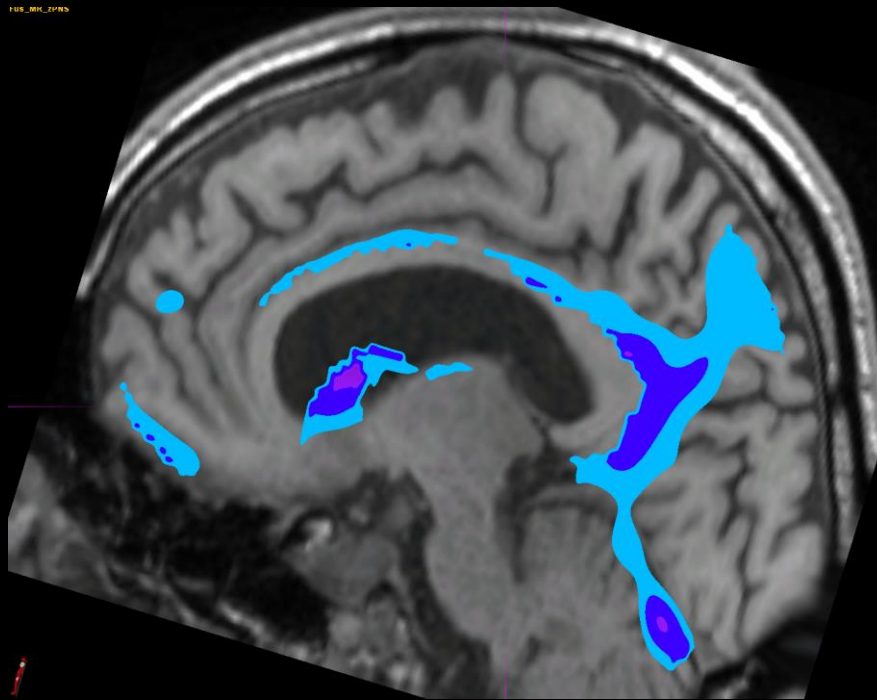
Sagittal view

FDG 8/24/2021

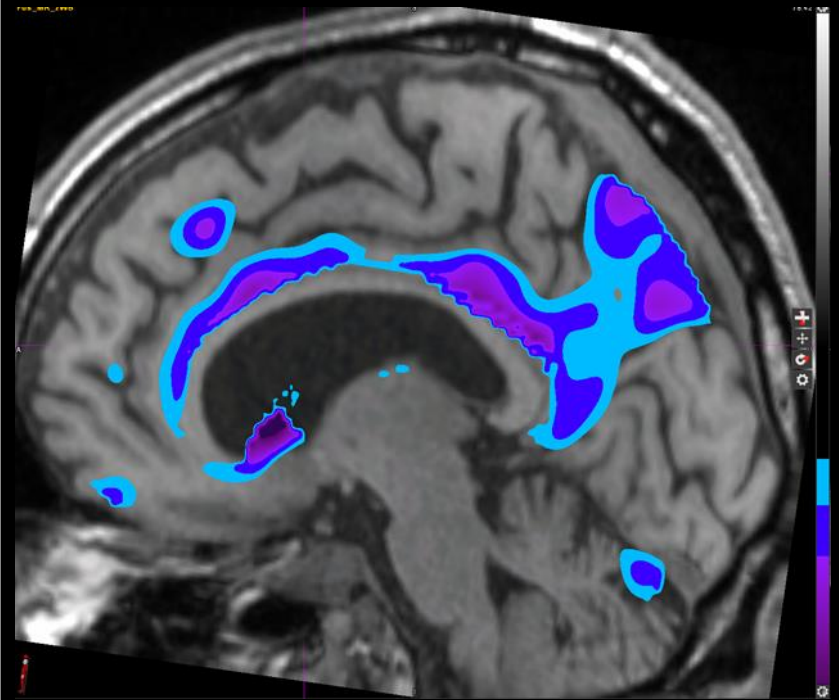


Blue = -2 SDs, purple = -3 SDs

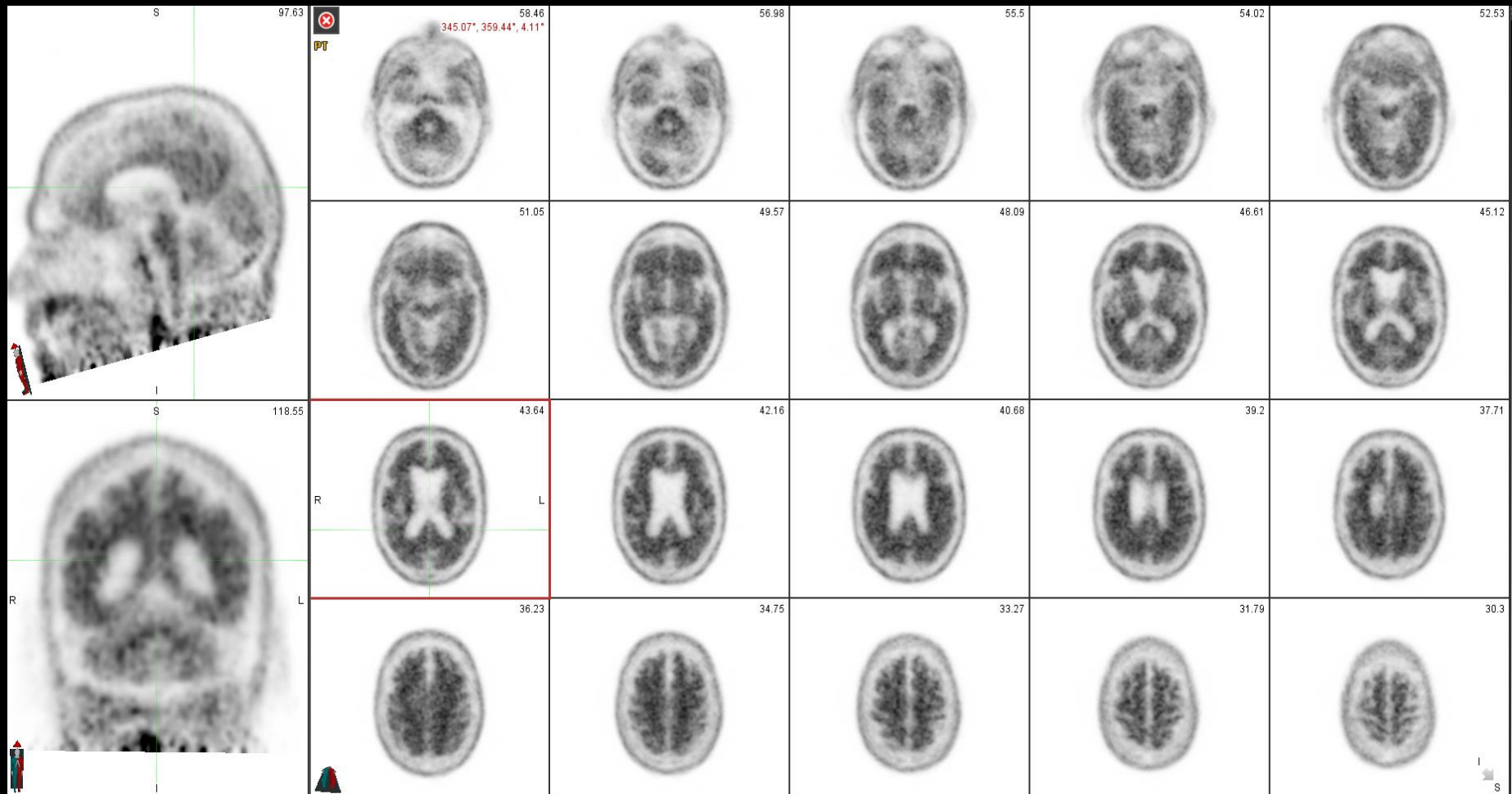
FDG 03/12/2021



FDG 8/24/2021

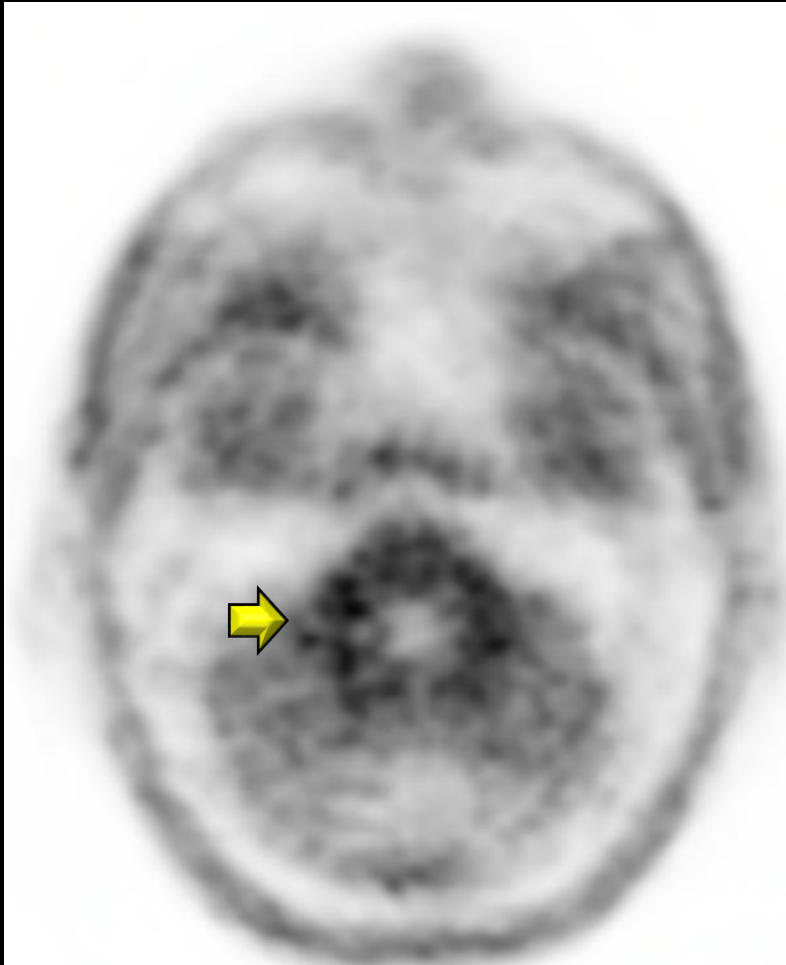


Brain amyloid PET/CT
(F-18 florbetapir, amyloid)
(07/28/2021)



Brain amyloid PET/CT

Brain amyloid PET/CT



Normal cortical-white matter contrast in the **cerebellum** (reference region)

Example Case of β -amyloid negative PET assessment

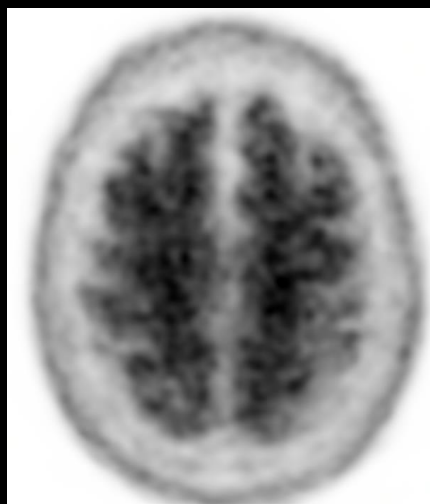
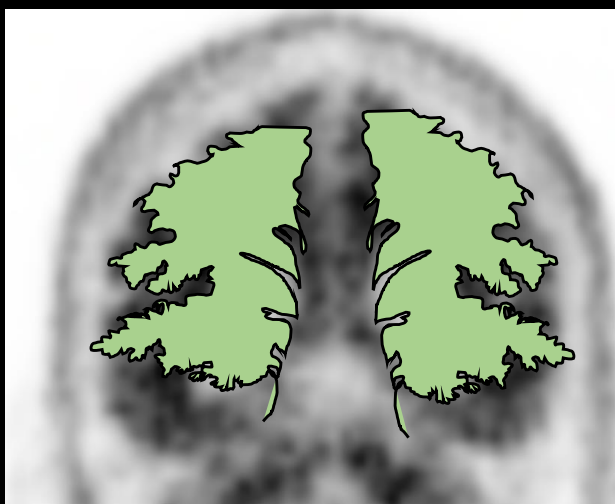
(NOT the evaluated patient):

β -amyloid negative PET assessment shows tracer binding in the white matter tracts with a “winter tree” configuration and convex configuration caused by tracer deposition in the white matter with an absence of uptake in the midline grey matter cerebral cortex



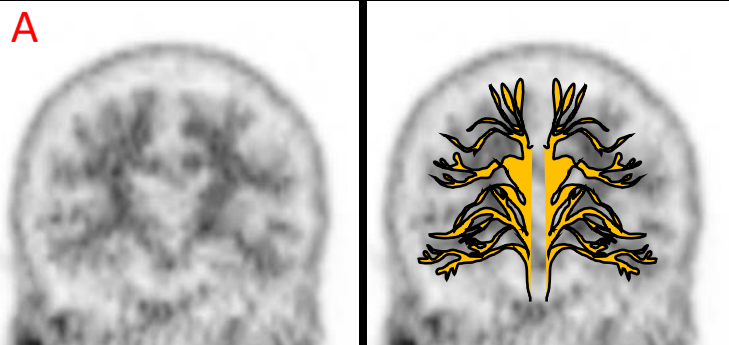
PATIENT: β -amyloid positive PET show tracer binding in the cerebral cortex gives a “summer tree” configuration.

Positive β -amyloid PET

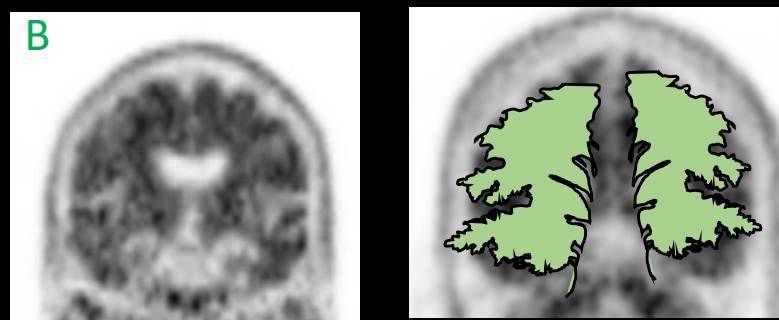
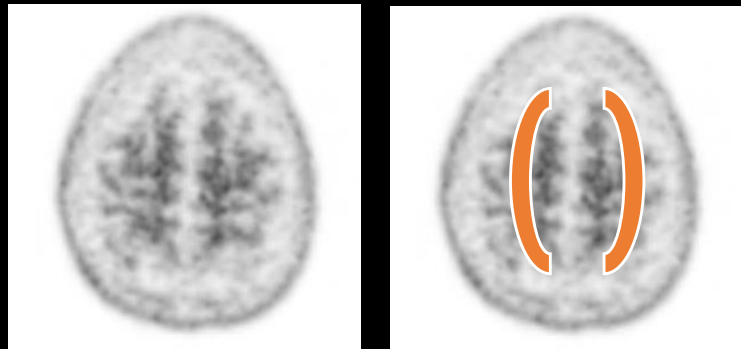


07/28/2021

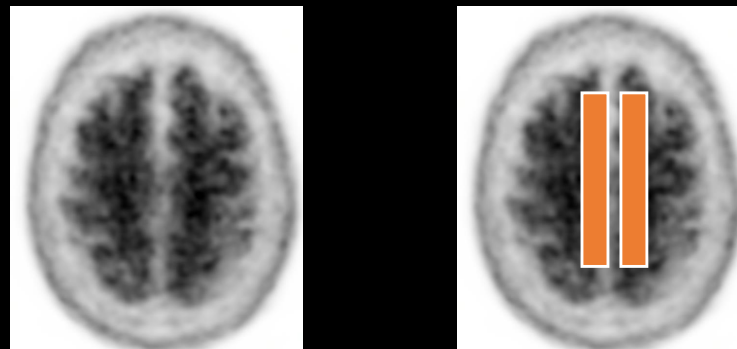
A. Example Case of β -amyloid negative. PET assessment shows tracer binding in the white matter tracts with a “winter tree” configuration and convex configuration caused by tracer deposition in the white matter with an absence of uptake in the midline grey matter cerebral cortex



Example Case of β -amyloid negative



Patient RB Positive β -amyloid PET



B. PATIENT RB: β -amyloid positive PET show tracer binding in the cerebral cortex gives a “summer tree” configuration.

07/28/2021

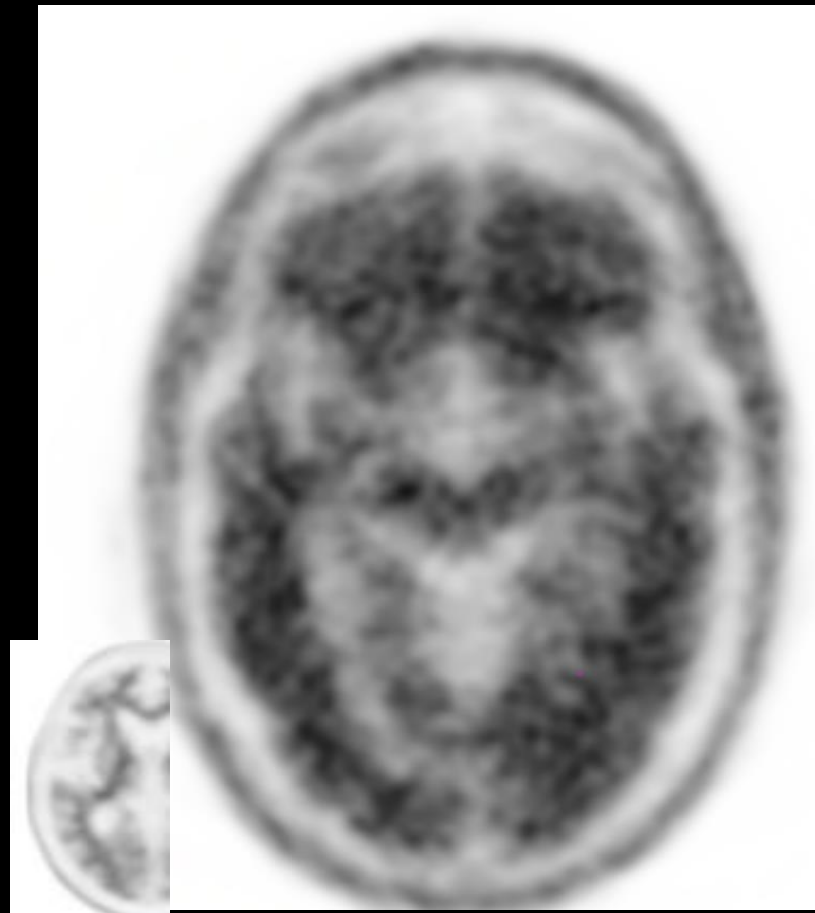
Brain amyloid PET/CT

“kissing hemisphere sign”

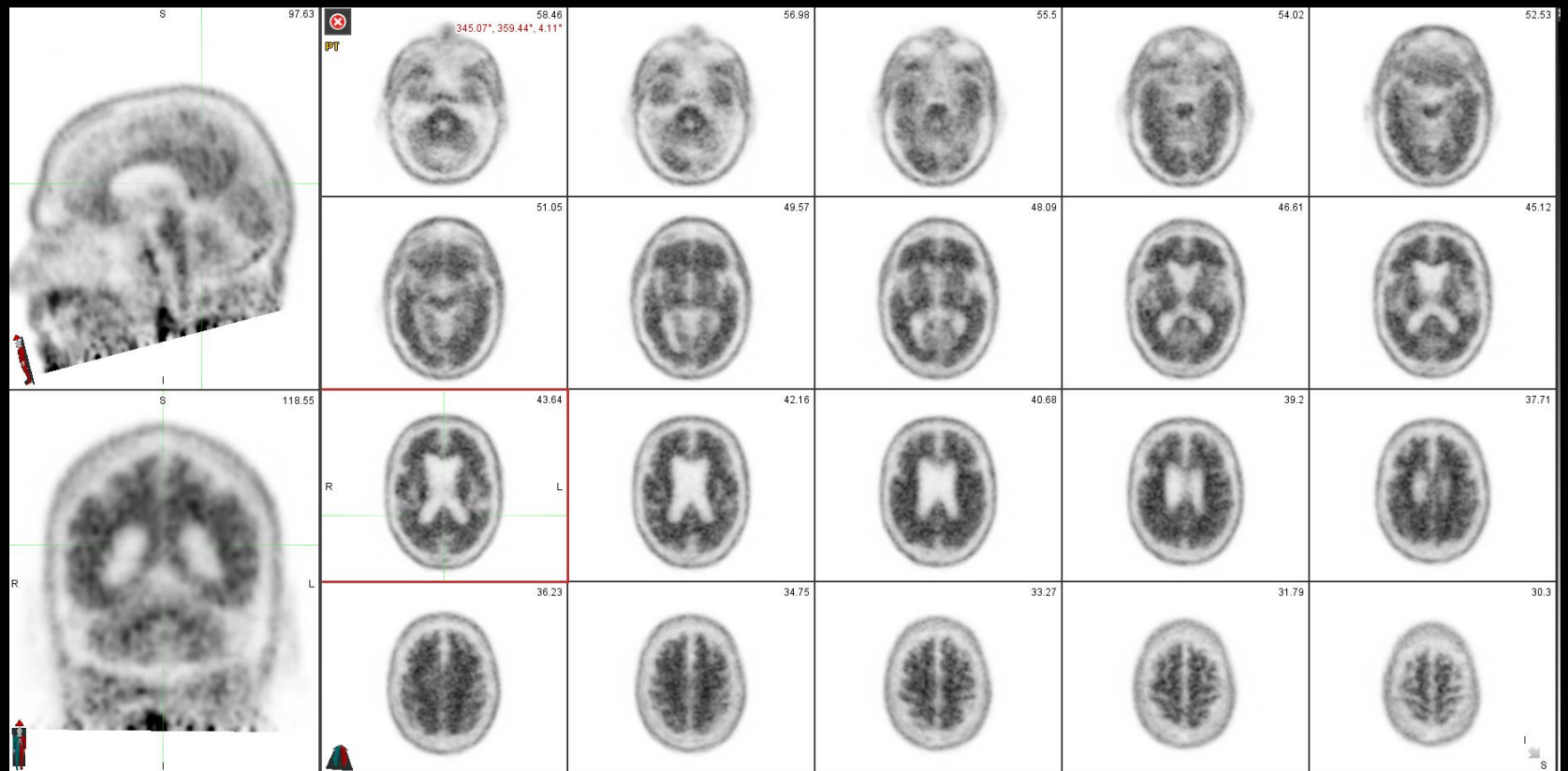


07/28/2021

“temporal plain”



Example Case of negative amyloid



07/28/2021